

What is claimed is:

1. Method for measurement of water content of a liquid, in which method a property of the liquid is measured electrically for one parameter,

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characterized in that

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- the properties of the liquid are measured at least substantially simultaneously also by another electrical method, whereby the properties of the liquid are measured using both a relative-value measurement method and an absolute-value measurement method resulting in the measurement of the liquid for its dielectric coefficient and relative water content.

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2. Method according to claim 1, characterized in that said measurement is carried out using a capacitive sensor.

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3. Method according to any one of foregoing claims, characterized in that said measurement is repeated at two different temperatures in a so rapid succession that the water content of the liquid may be assumed to stay at least substantially constant.

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4. Method according to any one of foregoing claims, characterized in that changes in the results of water content measurement due to aging of the liquid are compensated for by virtue of using only the most recent data of the measurement history for the compensation for changes in the response of the measurement system.

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5. Method according to any one of foregoing claims, characterized in that the aging of said liquid, advantageously oil, is indicated on the basis of changes in the value of ϵ_0 .

Replaced by Article 32

6. Method according to any one of foregoing claims, characterized in that, in the measurement of relative water content, an auxiliary medium is used for absorbing thereto the water contained in the liquid under measurement.
- 5 7. Method according to claim 6, characterized in that said auxiliary medium is a thin-film polymer layer.
- 10 8. Method according to claim 6 or 7, characterized in that the water content of said auxiliary medium is determined by way of measuring its dielectric coefficient.
- 15 9. Apparatus for measurement of the water content of a liquid, said apparatus comprising one electrical sensor means (5, 6 or 1, 6) for measuring the water content of a liquid, characterized in that
- 20 - the apparatus also includes a second electrical sensor means (1, 6 or 5, 6) for measuring the water content of a liquid, said second sensor means (1, 6 or 5, 6) measuring a different parameter than that measured by said first electrical sensor means (5, 6 or 1, 6), said sensor means being such that one of them measures the properties of the liquid by a relative-value measurement method and the other by an absolute-value measurement method, whereby one sensor means (5, 6) is sensitive to changes in the dielectric coefficient and the other sensor means is sensitive to the relative water content.
- 25 10. Apparatus according to claim 9, characterized in that said sensor means (5, 6) sensitive to changes in dielectric coefficient is formed by two interdigitated finger electrodes (5, 6).
- 30 11. Apparatus according to claim 9 or 10, characterized in that one electrode (6) of the sensor pair adapted to perform the measurement of dielectric

coefficient also forms a part of the measurement electrode pair (1, 6) adapted to perform the measurement of the relative water content.

12. Apparatus according to claim 9, characterized in that the sensor means
5 sensitive to changes in the dielectric coefficient is formed by a coaxial structure,
wherein one electrode is formed by a center pin and the jacket has a net-like structure
and is permeable to water.

13. Apparatus according to claim 9, characterized in that the sensor means
10 adapted for measuring the relative water content contain an auxiliary medium
capable of absorbing water contained in the liquid under measurement.

14. Apparatus according to claim 13, characterized in that said auxiliary
15 medium is a thin-film polymer layer.

15. Apparatus according to claim 13 or 14, characterized in that the
apparatus contains means adapted to measure the dielectric coefficient of said
auxiliary medium whereupon the relative water content of said auxiliary medium can
be determined.